Medical Information System (SIM)

(System Informacji Medycznej (SIM)

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Abstract – The authors discussed the general principles that should characterize the information system in health care: enabling the processing of data that is necessary for the implementation of state health policy, improving the quality and availability of medical services and financing tasks in the area of health protection. Then they characterized the information system in health care, SIM paying attention to the processing of medical personal and individual data by this system. They discussed the Medical Specialist Card and the Administrative Specialist Card.

Key words **-** information system in health care (SIM).

Streszczenie – Autorzy omówili ogólne zasady jakie powinny cechować system informacji w ochronie zdrowia: umożliwienie przetwarzania danych, które są niezbędne do realizacji polityki zdrowotnej państwa, poprawę jakości i dostępności świadczeń medycznych oraz finansowania zadań z obszaru ochrony zdrowia. Następnie scharakteryzowali system informacji w ochronie zdrowia, SIM zwracając uwagę na przetwarzanie medycznych danych osobowe i jednostkowych przez ten system. Omówili Kartę Specjalisty Medycznego oraz Kartę Specjalisty Administracyjnego.

Słowa kluczowe **-** system informacji w ochronie zdrowia (SIM).

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A. The idea and the planning of the study
B. Gathering and listing data
C. The data analysis and interpretation
D. Writing the article
E. Critical review of the article
F. Final approval of the article

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I. INTRODUCTION

In Poland, two models have been prepared, within which an e-prescription would function. The first of them - the Medical Services Register (RUM) was developed by the National Health Fund in 2007, and the second - the Medical Information System (SIM) by the parliament and is currently being implemented . In the proposed solutions , a patient card appeared, which was also referred to in an earlier project. Since the system introduced in 2018 is still under discussion, the authors have removed the attempt to participate in this discussion.

II. INFORMATION SYSTEM IN HEALTH PROTECTION

The information system in health care enables the processing of data that are necessary to implement the state health policy, improve the quality and availability of medical services, and finance health care tasks. This system contains databases in which information about [1] is collected :

- granted, granted and planned healthcare services,
- service providers and medical staff,

The information system contains databases, operating within three modules [1] :

1) Medical Information System (SIM),

2) Domain IT systems, e.g. the Medical Services Register System of the National Health Fund (RUM - NFZ),
3) Medical records.

The information system is served by two platforms [1] :

1) Platform for On-Line Provision of Services and Digital Resources of Medical Registries.

It allows the SIM to communicate with medical records to retrieve data that is contained in them; update data; combine medical records and provide access to data from registers to authorized persons.

2) Electronic Platform for Collection, Analysis and Access to Digital Resources on Medical Events. This platform, among other things, enables patients to view information about medical services provided and planned, which are collected in the Medical Information System (SIM), as well as access to data sharing reports that concern them. Moreover, thanks to this platform it is possible for providers to send messages on medical services to the SIM, exchange information among them in the electronic documentation, if necessary, and send electronic documents between service providers. The overall goal of the platform is to be able to send data on all patients' medical contacts across the country.

III. MEDICAL INFORMATION SYSTEM (SIM)

According to art. 10 of the Act on the Information System in Health Care, SIM is an ICT system that serves the processing of data on health services provided, provided and planned, provided by IT systems of service providers. In SIM, they are made available and processed electronically: personal data and medical data on service recipients, data on healthcare providers, medical personnel, payers, and prices of medical services financed or co-financed from public funds, and data enabling the exchange of documents in the form electronic, between health care providers and healthcare providers and NFZ [1,2,3]. Guaranteeing the confidentiality of data and its durability is one of the most important tasks performed by SIM.

Personal data and individual medical data, which are processed in the SIM, are collected in three modules: basic, statistical-settlement and orders.

The latest assumptions indicate that the basic module will not contain information regarding consent to the collection of cells, tissues and organs placed in the Central Register of Objections. A declaration of choice and data provided by the service provider to exchange information between the service provider and the service recipient will appear on this site [2]. The detailed content of the individual modules is shown in the diagram below (Figure 1).

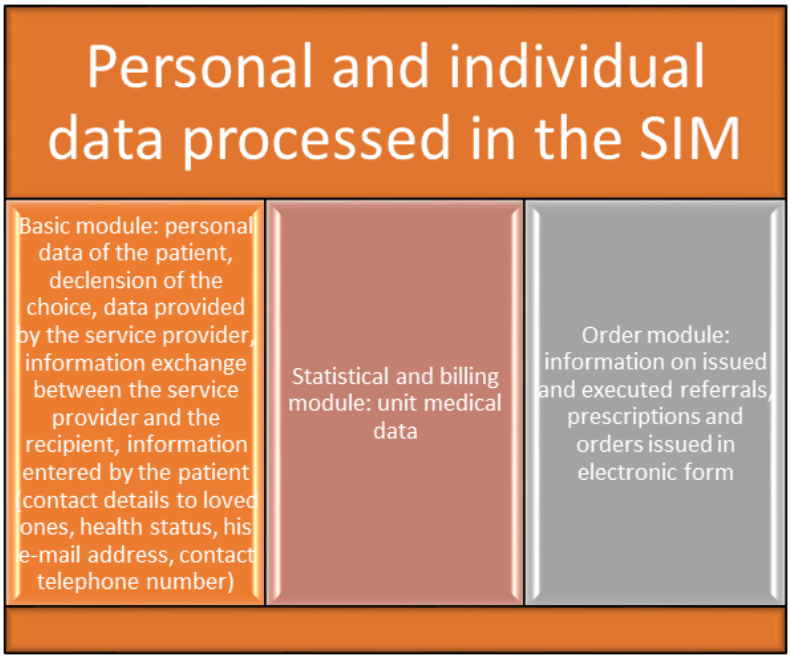

Figure 1 . Personal data and individual medical data processed in the SIM [own study based on 1,3]

The Act also provides for the creation of several medical registers, including the three main ones, which include [4] :

1) Central List of Clients
2) Central List of Service Providers
3) Central List of Medical Workers.

The Central List of Clients is based on the PESEL collection and on information sent by payers thanks to the ePUAP platform . Each patient will receive a unique ID [4].

The Central List of Service Providers assumes that every person providing health services, regardless of the type of practice, will receive an ID. It will contain data that will allow identifying the provider. There will be, among other things, the name or company of the service provider, the address of the registered office, as well as a certificate which will give the possibility of authorization in the system as well as verification of the electronic signature [4].

The Central List of Medical Workers also assumes that all medical professionals, including pharmacists, will receive an ID containing data that will enable their identification. The certificate is needed to authorize electronic

medical records , obtain access to data that allow downloading from the SIM electronic documents that were issued by another provider, obtain access to data collected in the SIM, which give the opportunity to exchange and download data from medical records and downloading from SIM documents in electronic form [1].

The need to authenticate people involved in the provision of benefits, resulted in the introduction of the Health Insurance Card and the Medical Specialist Card, which will be used simultaneously to confirm the medical event [5]. According to the latest draft act amending the act on the information system in health care and some other acts, the addition of the Administrative Specialist Card [2] is additionally assumed . The Health Insurance Card is an electronic document that confirms the right to health care services and also gives you the opportunity to confirm their performance. It can also serve as the European Health Insurance Card [5].

The card will contain the following information [3] :

- name and surname of the patient,
- date of birth,
- PESEL or number of another ID card,
- the number identifying the insurance institution,
- two-character ISO code for Poland,
- expiry date and card identification number.

It is suggested that the EKUZ be issued to all persons having the right to benefits financed from public funds, confirmed in the Central List of Insured. Other proposals indicate that the EKUZ would additionally act as a data carrier when providing emergency assistance, an access key to other teleinformation systems and a key for access to electronic medical records. eKUZ will be the highest proof in the hierarchy confirming the right to benefits. It is assumed that the card will not have a photo due to its low usability and high costs. On the basis of the relevant regulation, a model of the card and the application for issuing it, a detailed scope of information to be issued by the card as well as the procedure for issuing and canceling the card [3] shall be specified .

The Medical Specialist Card (KSM) can not work under the current legal regulations. They should be adjusted so that, together with the eKUZ card , they can fully fulfill their functions, mainly regarding confirmation of performance. In addition, KSM is to enable authorization by submitting an electronic signature, submitting declarations when concluding contracts, as well as confirming the right to practice [3]. The Medical Specialist Card will be issued to: physicians, dentists, nurses, midwives, paramedics, pharmacists, paramedics and laboratory diagnostics. The card will be financed by the Ministry of Health and issued for a period of 10 years. The following information will be placed on the card: name and surname of the holder, PESEL number, profession designation, photo, card expiration date, card identification number, authentication data and submission of a secure electronic signature, verified thanks to a valid certificate [2].

The Administrative Specialist Card (KSA) will be issued to other medical personnel and persons keeping records, settlements and entering the list of persons waiting for benefits. KSA will be financed by the National Health Fund [2,3].

Below is an original interpretation of the assumptions made earlier. It can be concluded that the implementation of the e-prescription will be divided into two stages. Both forms of prescriptions will function in the initial phase of implementation. Only in the next stage, the paper recipe will be replaced by its electronic equivalent. Thanks to the possibility of scanning a bar code placed on a traditional prescription, it will be possible for the doctor to send an e-prescription to the central base and its collection by a pharmacist in a pharmacy. The full implementation will cause the scanning of codes to be replaced by the reading of electronic cards. This change will not cause a difference in the way the e-prescription is sent, it will continue to be transmitted to the central database.

The institution responsible for implementing the new solution will be the Ministry of Health.

The basis for the functioning of the Medical Information System will be the Electronic Platform for the Collection, Analysis and Provision of Digital Resources on Medical Events (P1).

The electronic prescription will be in the order module.

After coming to the doctor, both the patient and the care provider will have to show their cards - respectively EKUZ and KSM, to confirm the medical event. The doctor will issue a prescription using the electronic prescription system. Information about its issue will have to be recorded in the medical documentation and in the order module.

The recipe will be verified in three aspects. First of all, was it issued in a given office. Secondly, whether the doctor who wrote it had the right to do it, and finally, whether the patient who was issued a prescription for reimbursed drugs, has the right to do so. After verification, the recipe will be transmitted to the central prescription database, where it will wait for implementation.

After coming to the pharmacy, both the patient and the pharmacist will have to use electronic cards, thanks to which it will be possible to identify them and to save the medical contact. Using the card, the pharmacist will be

able to download the prescription from the central prescription database. After full or partial implementation, it sends a message to the order module about the degree of prescription implementation. It will be necessary for every doctor's office and every pharmacy to have a computer with a card reader.

Thanks to the provision of the Characteristics of the Medicinal Product, the e-prescription system is to have an application by means of which it will be possible to inform persons entitled to issue a prescription with the degree of reimbursement, depending on the condition.

It will also be possible to search for the equivalent of the original medicine. It is also assumed to introduce a kind of medicine dictionary that will indicate harmful interactions between them.

According to legal acts, the e-prescription system will be based on the Internet. Rather, it is not assumed to create a dedicated network that will be completely separated from the Internet.

It is important that software manufacturers for the health sector adapt them to the requirements of the e-prescription system in order to ensure compatibility of the newly created solution. Thanks to this e-prescription service will be possible with the help of any IT program.

It is also worth paying attention to the simultaneous running of companies informing patients about the new solution, which will be an e-prescription and training for doctors, regarding the proper prescription prescription in electronic form. Well-informed participants of the system will be more willing to use the new solution because they will know how to use the e-recipe and applications connected to it. The experience of countries in which the e-prescription operates, show that information campaigns play a significant role during its implementation.

Everything indicates that the recipe will be separated from the medical records. It is necessary to regulate this situation, because it can not be that the documentation will not contain information on the medicines prescribed to the patient. The operation of the e-prescription and medical records is still open. However, it is worth considering how the two institutions will function.

The following figure (Figure 3) is an original interpretation of the functioning of the e-prescription in the health care system. The schematic does not include the transitional period, which assumes simultaneous cooperation of the prescription in paper and electronic form.

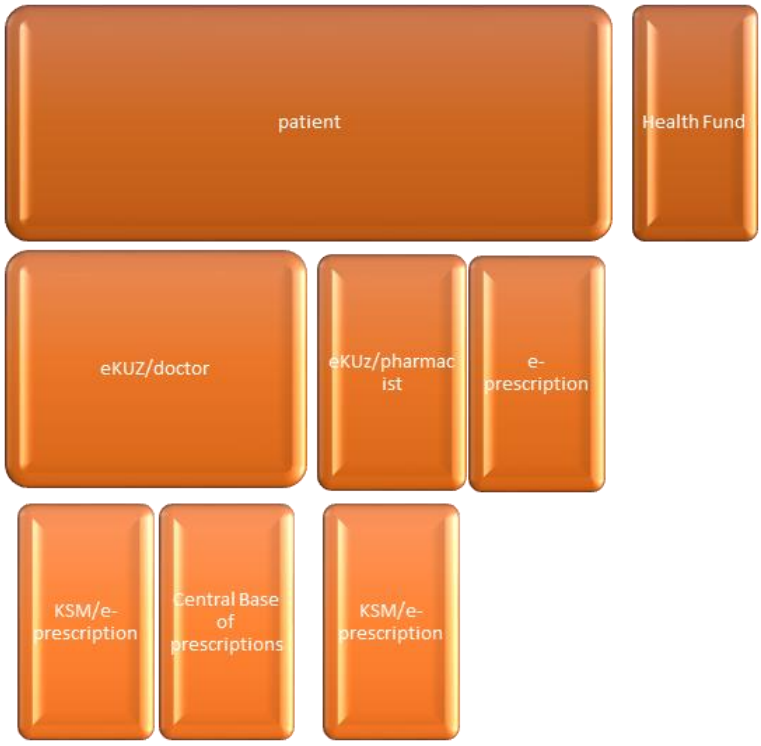

Figure 2. E-prescription flow in the Medical Information System [for own work based on 3]

There are three situations in which the doctor will be able to write out a traditional paper prescription. Firstly, when there will be no communication with the Platform, secondly, when the doctor issues a prescription for himself and for the family and when the patient is a person using the benefits under the coordination provisions [3].

In accordance with the amendments to the Act on the health information system, the patient will authorize every medical service, and individual medical data will be made available only with his consent [3].

IV. REFERENCES

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